



Newsletter of the Idaho Native Plant Society • Promoting Interest in Idaho's Native Flora

Orton Botanical Garden, Inc. aka Plantasia Cactus Gardens

By LaMar N. Orton, Loasa Chapter, INPS Past President

Rosalie and I have been interested in plants for many years. We sold bedding plants in the spring from our residence for 16 years. In 1986 we went to Arizona for the first time and fell in love with the Sonoran Desert. After returning home, we decided to see what cacti and other desert plants could be raised in Twin Falls, Idaho, at the northern edge of the Great Basin Desert. We started converting our 0.6 acre lot to a drought tolerant garden with many desert plants, but especially cacti. We collected and started many seeds of *Pediocactus* and *Escobaria*, and in the fall of 1990 we acquired our first permits for Joshua trees from the BLM Joshua tree harvest area in Esmeralda County, Nevada. That December the temperature in our back yard reached -22 degrees Fahrenheit. The Joshua trees weren't well established going into the winter, and the next spring two of the four trees died, and the other two bloomed and died on top. However, they started growing from the roots and one is now over six foot high. There have been Joshua trees in the garden ever since then.

In 2001, the home and five acres of pasture and hay fields adjacent to our home was put up for sale. We acquired the property with the intent of establishing a botanic garden demonstrating drought tolerant and native Idaho plants. In 2002 a five row wind break was planted on the west and part of the south side of the garden. In 2004 the wind break was completed on the south and on the east side of the five acres. The wind

break helps to create a micro-climate in the garden. From 2002 to 2007 over 4000 cubic yards of gravelly and sandy soil were brought into the garden, bermed and planted. Thousands of pounds of lava rocks were also brought into the garden to edge and place on the berms. The five acres now contain *Pediocactus*, *Escobaria*, *Echinocereus* (including a unique mutation), *Echinocactus*, *Ferocactus*, *Cylindropuntias*, *Opuntias* and *Sclerocactus*.

In addition to the cacti there are over 20 species of yuccas, including over 25 Joshua trees, a half dozen species and varieties of agaves, and three species of nolinias. There are also penstemons, saltbushes, desert willows, pinyon pines, junipers, grasses, perennial zinnias, salvias, gaillardias, evening-primroses, hesperaloes, globemallows, fern bushes, mahoganies, paintbrushes, buckwheats, etc. There is one berm dedicated to Idaho plants and another dedicated specifically to Idaho native buckwheats.

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Letter from the President

I have been thinking about INPS from the perspective of membership, leadership, participation, and contribution. As president, I am always fussing over the need to recruit new leadership and find volunteers to serve within the organization. At times, this can be a frustrating endeavor given the potential demands on already overly busy lives. But in this process, my thoughts always move from the negative to the positive as I reflect on the incredible people who contribute their time to make INPS function. We are served at the state and chapter levels by executive leaders, board members, secretaries, treasurers, editors, numerous committee chairs and associated members, all giving time, talent, and treasure to advance causes related to our wonderful native flora.

In so many ways, this is an amazing organization. We manage to pull together people from every possible demographic background, degree of education, and income level based simply on interest in learning about, appreciating, and protecting the native plants found within our state borders. This single, unifying passion creates a sense of comradeship, teamwork, and accord that is hard to find anywhere else. Striking up a stimulating and mutually beneficial conversation with a fellow INPS member, regardless of how well we know them, is as easy and comfortable as falling into an overstuffed easy chair. Working together toward a common, plant-related cause, comes just as natural.

In wrapping up this letter, I would like to shout out and thank those of you who have and do serve INPS. I won't try to make a list, but you know who you are. I would, however, like to thank one person who, at much personal cost, has served our organization for a long, long time. That person is Elaine Walker, our immediate past Treasurer. We truly appreciate her selfless service.

At the same time, I would like to welcome two new faces to INPS leadership – Karen Getusky, our new treasurer; and Derek Duval who has taken on the expanded role of membership committee chair. I look forward to working with each of you. May your passion for Idaho's native plants sustain you in your efforts to serve the INPS membership.

Yours truly,

Stephen Love
President

2016 INPS Membership Renewal

Please take time to renew your INPS membership now. You can renew (or join) on-line via the INPS website, or you can complete the membership form on the back of this issue of Sage Notes. Encourage others with an interest in Idaho's flora to join. The society is only as strong as the people who stand behind it.

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Announcements

9th Annual Idaho Botanical Foray

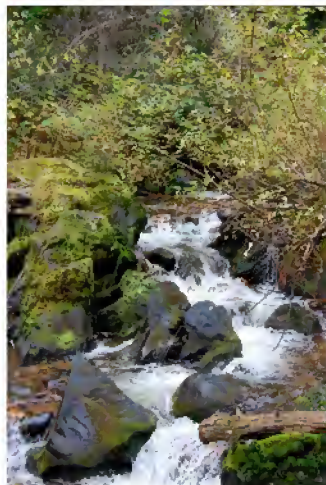
Save the Date! The 9th Annual Idaho Botanical Foray will be held June 16-19, 2016 in the Pahsimeroi River and upper Little Lost River areas in east-central Idaho. Tucked between the crests of the Lemhi and Lost River mountain ranges, this botanically diverse area includes a number of Idaho endemics and habitats that vary from alpine summits to riparian bottomlands. We look forward to contributing new collections from a somewhat remote area of Idaho. More detailed information about camping and logistics will be available soon on the INPS webpage and on Facebook on the Idaho Botanical Foray link. The 2016 Foray is being sponsored by Idaho State University. Please contact Janet Bala ([balajane\[at\]isu.edu](mailto:balajane@isu.edu)) at the Ray J. Davis Herbarium, Idaho Museum of Natural History if you have questions. •



2015 Foray. Photo by Janet Bala.

2016 INPS Annual Meeting — From Refugia to Ridgetops

The 2016 annual meeting will be held June 10-13, 2016. It will be hosted by the White Pine Chapter of Idaho Native Plant Society (INPS). INPS members and guests are invited to join together to socialize and botanize at the Fish Creek Group Use Camp and the Fish Creek Pavilion



Canyon Creek. Photo by Nancy Miller.

on Mt. Idaho eight miles south of Grangeville, Idaho. As the title indicates, we will explore several types of habitats along nearby rivers and ridgetops. The Lochsa and Selway Rivers east of Grangeville serve as refugia for disjunct populations of plants which inhabit these areas and otherwise are found in more temperate environments in Western Washington and Oregon. We will also have an opportunity

to explore the extensive grasslands and associated forbs found on the canyon breaks west of Grangeville in an area with spectacular views of both the Snake and Salmon River drainages.

You will be able to register and pay for the meeting online on the Statewide Annual Meeting webpage <http://idahonativeplants.org/statewide-annual-meeting/> or by filling out and mailing the registration form included with this issue of *Sage Notes* to the White Pine Chapter PO Box. The deadline for receipt of your registration is May 15. After this date you will need to contact the White Pine Chapter in order to register.

We have reserved the Fish Creek Group Use Camp for camping Thursday noon through Tuesday morning and the Fish Creek Pavilion for registration Friday and two of our evening functions (Friday and Saturday). The Fish Creek Group Use Camp is fairly primitive and accommodates tents, pickup campers, and small to medium size camping trailers. It has two vault toilets. It does not have potable water or electricity. We will provide water in 5 gallon containers but please plan to bring water for your personal needs. The nearby Pavilion and developed campground both have water available for us to refill containers. Several propane or butane stoves will be available for use at the camp site by those without cooking facilities. The campsite accommodates 20 vehicles (an auto/trailer combo counts as one vehicle.) Larger trailers or RVs may camp at the developed Fish Creek Campground which has 10 first-come/first-served sites. We hopefully will be able to occupy some of these sites mid-week for use by larger vehicles so you need to provide trailer/RV length information on the registration form.

The Grangeville Chamber of Commerce website <http://grangevilleidaho.com/chamber-of-commerce/> under their 'Where to stay' page lists RV parks and motels in and near Grangeville for those who do not wish to camp. Bear Den RV Resort on Hwy 95 has several cabins in addition to full RV facilities. All RV Resorts and motels fill up fast because of Grangeville's location on Hwy 95 and in the center of the state.

From Grangeville we have access to north central Idaho with its rugged peaks, deep canyons, and canyon ridges. Because of the elevation extremes there is oppor-

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tunity to see a wide variety of vegetation from cedar and grand fir groves to extensive grasslands. Field trips are being designed to maximize the floristic display. Plant species lists will be available on the annual meeting website and at registration. BE PREPARED! As this meeting is held in June field trips and other outdoor functions may be modified or cancelled due to weather conditions.

For further information, including late registration, please contact one of the following:

- Nancy Miller: [nmiller \[at\] moscow.com](mailto:nmiller@moscow.com), (208) 301-0560
- Judy Ferguson: [jlf.sun \[at\] yahoo.com](mailto:jlf.sun@yahoo.com), (208) 585-7074
- Susan Rounds: [groundkpr4 \[at\] gmail.com](mailto:groundkpr4@gmail.com) (208) 596-8092
- White Pine Chapter: [whitepine.chapter \[at\] gmail.com](mailto:whitepine.chapter@gmail.com)

DIRECTIONS (Watch for INPS Signs)

The Fish Creek Pavilion:

From Grangeville, head south on Grangeville-Salmon Road for approximately 7 miles to the Fish Creek Meadows area. (The road may change names.) Turn right on Forest Road 4600. The entrance to Fish Creek Pavilion is located 300 feet ahead on the left.

GPS 45.85778, -116.008167

The Fish Creek Group Use Camp:

Approximately 1.5 miles further south of the Pavilion on the main road. The entrance road angles off on the right and approximately 100 yards further the group camp entrance is on the left. Members will be there to help you site your vehicle.

SCHEDULE of EVENTS

Friday, June 10, 10:00 a.m. until dinner:

When you arrive, sign in first at the Fish Creek Pavilion before going to the group camp site. You will receive your information packet with handouts, dinner tickets, maps, field trip final details, etc. Field trip registrations will be posted on a board so carpooling can be considered and arranged. There will be some guided plant walks Friday afternoon or you may take advantage of one of the trails which leave from the pavilion/campground area.

Friday evening:

We will gather at 6:30 p.m. at the Pavilion for a potluck dinner. The White Pine chapter will supply grilled meat, buns and condiments. Please bring an appetizer, salad or dessert to share. Plan to bring your own plates, cutlery, and alcoholic or non-alcoholic beverage. Water will be available. Sign in will continue as people arrive.

Saturday, June 11:

Field trips will begin early Saturday morning. Final details will be in the information packets and posted on a sign board. There will be a catered dinner at the Pavilion starting at 6:30 p.m. followed by the members' Annual Meeting at 7:30 p.m. and by the guest speaker at 8:00 p.m. Plates, cutlery, coffee will be provided. Please bring your own alcoholic or non-alcoholic beverage. Water will be available.

Sunday, June 12:

Field trips will begin early Sunday morning. Final details will be in the information packets and posted on a sign board. Sunday evening those who wish to eat and socialize will bring their own food and will meet at the group camp site at 6:30 p.m.

Monday, June 13:

The optional Monday field trip will begin at 9:00 a.m. Final details will be in the information packets and posted on a sign board. No organized activity is planned for the evening.

Tuesday, June 14:

All vehicles must be out of the Group Use Camp by 11:00 a.m.

FIELD TRIPS

We will finalize carpooling and leave from the Pavilion area each morning. Meeting and departure times for each field trip will be included in the information packet. For those who are not camping in the Group Use Camp or who are staying in Grangeville or elsewhere, we will provide an appropriate meeting place and time for each field trip in the information packet. For all field trips, bring a lunch, water, sun protection, and insect repellent. Good walking or hiking shoes will be necessary. A hat is recommended. Be prepared for changeable weather. Please bring hiking poles if you normally use them.

Trip #1 (offered both Saturday and Sunday):

Canyon Creek/Dasynotus Site driving and hiking tour. This is a full day trip. We will leave from the Pavilion area and drive to meeting place in Kooskia. We will then head east from Kooskia on Highway 12 for 20 miles to Lowell, where the Lochsa and Selway Rivers meet to form the middle Fork of the Clearwater. From there, it is seven miles up Highway 12 along the Lochsa to its Canyon Creek tributary. Like all the tributaries to the Lochsa, Canyon Creek descends a V-shaped canyon with steep slopes on either side, but an easy trail follows the creek. We will hike about one mile on a (somewhat overgrown)

trail along the creek bottom, past vertical outcrops with rock gardens blanketed with mosses and ferns. On the side of the creek opposite the trail, there are lush, old growth western red-cedar, and above the trail, open shrub field where conifers have not regained a hold after early twentieth century fires. A diversity of moist-forest plant species lines the trail. Amazingly, the small flat where we park—an alluvial fan formed at the mouth of the creek—was once the site of a World War II internment camp. On leaving Canyon Creek we will drive to a *Dasynotus daubenmirei* site. This Idaho endemic is only known to occur at a few sites.

Trip #2 (offered both Saturday and Sunday):

Mud Springs and Lucile Caves RNA driving and hiking tour. This is a full day trip. We will leave from the Pavilion area and stop briefly in Grangeville to meet up with those who did not stay at the group camp area. We will drive south on Hwy 95 leaving the highway south of Lucile on the Cow Creek Road (Forest Road 242). One stop will be at Mud Springs Ridge (approximately 5300 ft. in elevation) where we will walk to the fescue-dominated grasslands site (an easy hike, approximately 1 mile). We could observe at least 12 native grass species, including *Festuca idahoensis*, *Festuca occidentalis*, *Koeleria cristata*, *Melica subulata*, *Danthonia unispicata*, and *Pseudoroegneria spicata*. In addition to grasses, the forb display should be impressive as well. This area has two phacelia species, 5 penstemon species, 5 lomatium species, and two lupine species. A second potential stop will be at Cow Creek Saddle where we would botanize and photograph the spectacular views of both the Snake and Salmon River drainages. Those who do not wish to hike may remain with the cars and botanize nearby. The rare *Silene spauldingii* is found in the fescue grassland but unfortunately blooms later in the summer. In its vegetative state it is fairly hard to find and unremarkable. We will then return to Hwy 95 with a stop at Lucille Caves RNA/ACEC to investigate its interesting geologic features and canyon grassland endemics if there is time.

Trip #3 (offered Saturday only):

Coolwater Ridge Lookout hike. This is a full day trip for a group of participants who want a bit more strenuous or lengthy hike with great wildflowers and views from over 6000 ft. of the Selway River canyon below. The area along the road and the ridge did not burn, but we should have amazing views of the charred landscape resulting from the fires of 2015. Hopefully we will see evidence of

regeneration as well. The group will carpool to the Lowell area and then drive on a graded road up the ridge until a small parking area is reached. Hikers will then walk the rocky ridge road to view the floral display. Those who wish to can hike to the lookout. Because of the altitude the floral display period is compressed and should be spectacular. Some of the plants we should encounter are *Pedicularis contorta rubicunda*, *Penstemon flavescens*, and *Carex californica*.

Trip #4 (offered Sunday only):

Grand Fir Mosaic driving and hiking tour. We will leave from the Pavilion area and drive to a meeting place in Kooskia. From there our exploration will focus on the upper watershed of Clear Creek and special habitats surrounding Lookout Butte, such as the Grand Fir Mosaic, intermediate elevation grasslands, and pockets of disjunct species that are found only in this area of Idaho and west of the Cascades. It will also include stops to see several special species such as *Mertensia bella*, *Cardamine constancei*, *Cypripedium fasciculatum*, *Synthyris platycarpa*, and *Cephanthera austinae*. Most of this trip will be driving with stops for short hikes. Our trip leader will discuss various habitats that make up the Mosaic and the problems associated with the incursion of bracken fern colonies and other plants.

Trip #5 (offered Monday only – optional):

Route to be determined based on floral display.

We anticipate driving south from the Group Use Camp to investigate floral displays in some excellent botanizing areas of this region. There may be short, easy hikes. •

The buckwheat flowers were especially relished by the plentiful deer in the area, until an 8-foot fence was installed. There are many other “guests” that visit the garden, including cottontail rabbits, skunks, raccoons, porcupines, and rock chucks (yellow-bellied marmots). Especially appreciated are the many birds that not only visit the garden, but raise their families in the garden. Prior to planting the many native plants, quail were never seen. Now many families are seen in the garden all year round. When the claret cups bloom in May and June the hummingbirds show up and remain in the garden until fall. In addition to the claret cups, they enjoy the flowers of the hesperaloes, desert willows, and penstemons.

We continue to experiment with new plants every year and have drought tolerant plants from other areas of the world to include Spain, South Africa, and Turkey. Our main emphasis, however, will always remain Idaho and Great Basin natives. In an effort to support the garden, we also sell some plants both on-line at plantasiacactusgardens.com and at the garden. Each year there is a plant sale and open house the last two weekends in May that coincides with a wonderful flower display in the garden.

As a winter attraction the garden displays approximately 150,000 Christmas lights from Thanksgiving evening through the weekend after New Year’s day.

Currently the garden is open by appointment from April 1 through Nov 15. Appointments can be made by calling (208) 734-7959. During the plant sale and open house in May, no appointment is needed. During the Christmas light display the gate is open every evening from 6:00 p.m. to 10:00 p.m. All are invited to wander through the Christmas lights.

In November 2015, Orton Botanical Garden, Inc. received IRS approval of 501(c)(3) nonprofit status. The garden now also has a board of directors to help provide direction and help with its preservation into the future. •



Garden scene. All photos by author.



Opuntia basilaris var. basilaris



Eriogonum mancum – verrucosum phase



Eriogonum ovalifolium var. purpureum



Mixed flower bed



Christmas 2015

Habitat Restoration Project at The World Center for Birds of Prey

By Tate Mason, Education Coordinator with The Peregrine Fund

The World Center for Birds of Prey is the headquarters of The Peregrine Fund, a conservation organization dedicated to saving raptors from extinction. The campus sits on 580 acres located approximately six miles south of I-84 in Boise. Situated on a ridge jutting up from the Snake River Plain, the Boise Front dominates the view to the north and the Owyhee Range to the South. The land was acquired by The Peregrine Fund in 1984 and currently houses breeding facilities for endangered raptors, a research library and archives, an administrative building, and an interpretive center.

The Peregrine Fund maintains a small established footprint, with the majority of the property being undeveloped. Unfortunately, the dominant plants are invasive species common to the Snake River Plain, including cheatgrass (*Bromus tectorum*), tumble mustard (*Sisymbrium altissimum*), and Russian thistle (*Salsola tragus*). However, scattered stands of native vegetation with big sagebrush (*Artemisia tridentata*), rabbitbrush (*Ericameria nauseosa* and *Chrysothamnus viscidiflorus*), and a variety of bunchgrass species also occur. Occasional sightings of burrowing owls, black-tailed jackrabbits, and other open-country species are reported, but most shrub-steppe obligate wildlife species are currently absent.

In 2007, a small-scale habitat restoration project was undertaken between two buildings (see photo, section A). The planted big sagebrush and rabbitbrush are thriving, and we are seeing a natural expansion of both forbs and biological soil crusts. Initially, access to water was one of the primary factors contributing to the success of this restoration effort. The success in this area has provided a template for subsequent and ongoing restoration projects.

Over the past two years (2014 and 2015) we have expanded the restoration effort to an area known as Raptor Ridge (see photo, section B). The initial focus has been to re-establish a native shrub overstory, beginning with the planting of approximately 1500 plants over a 3 acre area.

We planted approximately 500 Wyoming big sagebrush, 500 antelope bitterbrush (*Purshia tridentata*), 200 silver sage (*Artemisia cana*), and 100 gray rabbitbrush, along with a few forb and grass species. The cumulative survival rate thus far is nearly 70 percent. Again, we attribute this success to our ability to water the plants (the current restoration area can be accessed with a chain of garden hoses), and our continuing determination to control exotic weeds. Thus far, weed control has been largely manual

(mowing, weed-whacking, and hand pulling). These efforts have resulted in three Eagle Scout awards, and provided service learning opportunities for a variety of groups. There continues to be a high interest in short-term service projects, and the potential for this restoration project to engage the general public is enormous. The World Center for Birds of Prey attracts 40,000 visitors

each year and many of them walk the trails which traverse the current restoration area. The project also provides interpretive education about the values of native plants.

Habitat restoration in the shrub-steppe environment is of critical concern to a multitude of interests. The recent potential listing of the Greater Sage-grouse shined a bright light on an ecosystem in peril. Our collective ability to restore degraded rangeland to functioning shrub-steppe is one of the great ecological challenges of the 21st century. Land occupied by the World Center for Birds of Prey is accessible to the public, un-grazed, and has access to irrigation. We believe this project provides a highly visible test bed for habitat restoration, public education, and could be an anchor for a larger, regional restoration of the Snake River Plain. INPS members are welcome to tour the restoration area, and we would be happy to host a work party with INPS almost anytime during the year. Contact Tate Mason ([tmason \[at\] peregrinefund.org](mailto:tmason@peregrinefund.org), (208) 362-8259) for more information. •



This picture provides an overview of the Peregrine Fund's World Center for Birds of Prey. Habitat restoration at site 'A' was initiated in 2007. Restoration of site B (Raptor Ridge) began in 2014 and is the site of current and ongoing restoration efforts.

ERIG Report

Among Mountains and *Micranthes*

By Rebecca Stubbs, University of Florida, Florida Museum of Natural History

In the definitive literature on saxifrages, Webb and Gornall remarked that the genus *Micranthes* is the “largest and potentially most confusing group of saxifrages in North America¹.” This confusion is due to numerous factors including the difficulty in collecting some species at high elevations, the complicated genetics of this group (e.g. enormous variation in chromosome number, polyploidy, putative hybridization), inconspicuous nature of some species, and a complicated nomenclatural history. Therefore, for my Ph.D. research at the University of



Collecting *Micranthes* at Sawtooth Lake.
All photos by author.

Florida, co-advised by Dr. Nico Cel-linese and Dr. Doug Soltis, I am working towards elucidating the uncertainties surrounding this enigmatic group of plants. With help from the Idaho Native

Plant Society’s ERIG program, I completed my first field season collecting plants in North America in 2014. I am very grateful for support and interest in my research from the INPS and it is my pleasure to share my love of this obscure, yet enigmatic, group of plants with the membership.

My fieldwork in Idaho spanned the state and resulted in collections in Idaho, Valley, Custer, Blaine, Fremont, and Adams Counties. Plant populations were initially targeted based on previously documented voucher specimen locations included in the Consortium of Pacific Northwest Herbaria specimen database (www.pnwherbaria.org). Additionally, I hiked to locations that had suitable habitat but no previously documented *Micranthes* collections in hopes of finding new populations. Between these two methods my fieldwork was a success and I was able to botanize in some of the most impressive natural areas I have seen in North America. In Idaho this included the Sawtooth, Pioneer, and Bitterroot Mountain Ranges. Fieldwork in Idaho was invaluable in terms of the amount of collections I was able to make due to the abundance of

suitable habitat in the state. I also greatly enjoyed my time in Idaho and frequently mention my hikes in the Sawtooths as one of the most spectacular places I have ever conducted fieldwork. I additionally enjoyed botanizing around McCall at places like Josephine Lake, Buck Lake, Bruin Mountain, and Granite Mountain. Trips to Borah Peak and hikes around Stanley including Sawtooth Lake also rank high on my list of spectacular places in Idaho.

If you have ever hiked in the Pacific Northwest at moderate to high elevations you have likely seen *Micranthes*—though you may not have known it. For one, you might have called it *Saxifraga*. The reason for this confusion dates back over 200 years to Adrian Haworth recognizing the genus *Micranthes* as distinct from *Saxifraga* citing morphological variation. Unfortunately, he also recognized 15 (!) other genera within *Saxifraga* and subsequently this mass splitting was not widely accepted². Only ten years later David Don put *Micranthes* back in *Saxifraga* as a distinct section, which was later corroborated by both Engler’s, and later Gornall’s, monumental works with the genus^{1,3–6}. Though there were some attempts over the years to keep *Micranthes* as a genus, it generally remained in *Saxifraga* as a section. In the 1990s there was renewed interest in Saxifragaceae with the research of Dr. Doug Soltis and colleagues at Washington State University. Their molecular analyses combined with morphometric studies clearly showed that *Micranthes* deserved elevation to generic status^{7–10}. For the last thirty years *Micranthes* has been unequivocally accepted as a genus, supported by both morphological features and DNA evidence.

Another reason that *Micranthes* is sometimes overlooked is that in addition to many species being small and inconspicuous, the genus as a whole differs in habit, leaves, and corolla. They are generally found at high elevations or high latitudes, and a specific taxon’s morphology is reflective of its habitat¹¹. The species are usually small perennials with mostly basal leaves that can be somewhat fleshy—but there are, of course, exceptions. In case you are unfamiliar with *Micranthes* the easiest way to distinguish it from *Saxifraga* is by the position of the leaves—in *Micranthes* the leaves are entirely basal with a scapose inflorescence while in *Saxifraga* the leaves will be basal and along the stem (cauline). Also, you should keep in mind that while hiking in Idaho you are actually more

likely to encounter a *Micranthes* than a *Saxifraga* because in North America *Micranthes* has a greater presence with almost twice as many species as *Saxifraga* – although *Saxifraga* is the larger genus worldwide¹¹.

I, therefore, would like to take this opportunity to introduce the members of INPS to some of the more common species of *Micranthes* found in Idaho. This list was compiled from a combination of my research and fieldwork, Flora of North America¹², Saxifrages by Malcom McGregor¹¹, A manual of Saxifrages and their cultivation by Webb and Gornall¹, and the Consortium of Pacific Northwest Herbaria website (www.pnwherbaria.org). Perhaps this summer when you head out to the mountains to botanize keep this list in mind and let me know which *Micranthes* you encounter!



M. bryophora - note two yellow dots on each petal



M. bryophora - with bulbils replacing flowers

Micranthes bryophora – The basal leaves on this plant are narrowly elliptic and notably hairy; the flowers are acutely bilaterally symmetrical and close inspection will reveal two yellow dots on the base of each white petal. Interestingly, this species produces bulbils (small plantlets) where flowers would normally be as a form of asexual reproduction. In some populations you are more likely to see plants with bulbils rather than flowers. In Idaho this plant is not very common but is recorded from Idaho, Valley, and Adams County. Its overall distribution shows an interesting disjunct between Idaho and California.



M. ferruginea - asymmetrical flower with distinct markings on upper 3 petals



M. ferruginea - hairy, slightly succulent leaves

Micranthes ferruginea – This species is recognizable from just the leaves. The basal leaves are slightly suc-

culent, spatulate, coarsely serrate, and covered in long hairs. The flowers are white and bilaterally symmetrical; the three upper petals have two yellow spots while the lower two petals do not have spots. The developing carpels and fruits are mottled pink to red. These plants are fairly common in Idaho in wet, rocky habitats and can be found as far north as Ruby Mountain in Boundary County and all the way down near Sun Valley in the Pioneer Mountains.



M. nidifica/fragosa - with white petals, but sometimes they are green



M. nidifica/fragosa - showing open inflorescence and basal leaves

Micranthes nidifica/fragosa – These two species go back and forth on being separate or distinct, so although I collected what were reported to be distinct taxa, further analyses are needed. In the Flora of North America treatment these two species are distinguished by *M. nidifica* having a cylindric inflorescence with petals equaling or shorter than sepals while *M. fragosa* has a conic inflorescence with petals longer than sepals. Unfortunately, these traits vary in relation to anthesis so these two species can be difficult to tease apart. Both taxa have rather inconspicuous flowers with whitish-green petals and orange anthers. The basal leaves are entire to minutely-toothed. Both taxa are found on gravelly slopes sometimes near water and are common at mid to high elevations in Idaho.



M. lyallii - showing red scape, white petals, and reflexed sepals



M. lyallii - habit and leaves

Micranthes lyallii – The leaves for this short plant are unique among *Micranthes* for varying in shape

Continued on Page 10

between orbicular to spatulate with the apex of the leaf being serrate-sinuate. The inflorescence sits upon a bright red stalk (or scape), which contrasts nicely with the sharp white corollas of the *M. lyallii* flowers. I am rather fond of this plant because if *M. lyallii* is flowering it is likely the entire alpine meadow in which it occurs is also in full bloom.



M. odontoloma - flower with club-shaped filaments



M. odontoloma - with round, serrated leaves

Micranthes odontoloma – This species drove me crazy during the first part of my collecting season because I was finding the easily recognizable leaves for months before I actually saw the plant in flower and could collect it. This taxon is part of the traditionally circumscribed section Rotundifoliata (now Sect. Calthophyllum), hence it has unmistakable round leaves with serrated margins. The flowers are white with long club-shaped filaments. These plants are common and always found by water.



M. oregana - Do you see the white spider perched in the inflorescence?



M. oregana - the height of this species makes it easily to see from afar

Micranthes oregana – *M. oregana* is always a pleasure to hunt for due to its large size compared to other species. The leaves of *M. oregana* alone, reaching lengths up to 25 cm, are multiple times larger than some other species of *Micranthes* in their entirety. *Micranthes oregana* can grow to 125 cm tall with over fifty white flowers crowded in the inflorescence. This plant always grows in bogs, marshes, and streams so be prepared to get your boots wet to get a closer look at this magnificent *Micranthes*!

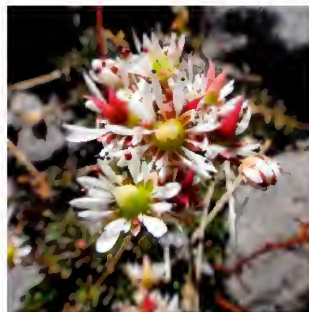


M. subapetala - with bright pink corollas

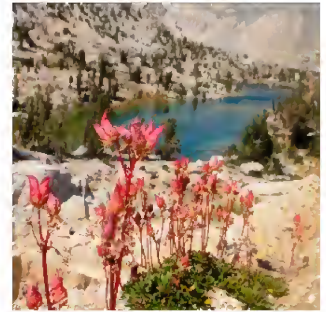


M. subapetala - its large leaves are quite similar to *M. oregana*

Micranthes subapetala – What a treat to get up to high elevations and see this species! In habit it is similar to *M. oregana* – tall plant with large basal leaves – but the petals of this species are bright pink. The thirty or so hot pink flowers congested together in the inflorescence can in fact be spotted from far down the trail. This species is not common in Idaho and you would have to go to the southeast part of the state close to Montana to find it but it is worth the trip!



M. tolmiei - inflorescence



M. tolmiei - fruits and succulent leaves

Micranthes tolmiei – It is hard to choose a favorite *Micranthes* but *M. tolmiei* would be in the running simply because if I have found *M. tolmiei* it means I am in my favorite habitat – the alpine zone. This high elevation *Micranthes* is kind of the odd plant out in the group—it is mat-forming and can be slightly woody at the base; the leaves are truly succulent with indistinct petioles; though the leaves are crowded at the base they are cauline (rather than basal like the rest of the genus); the fruit is my favorite part of this plant because as it ages it turns from red to a rich purple with stained-glass window mottling. This species shows an interesting disjunction between the northern Rocky Mountains in Idaho and Montana and the Sierra Nevada/Cascades from California all the way to Alaska.

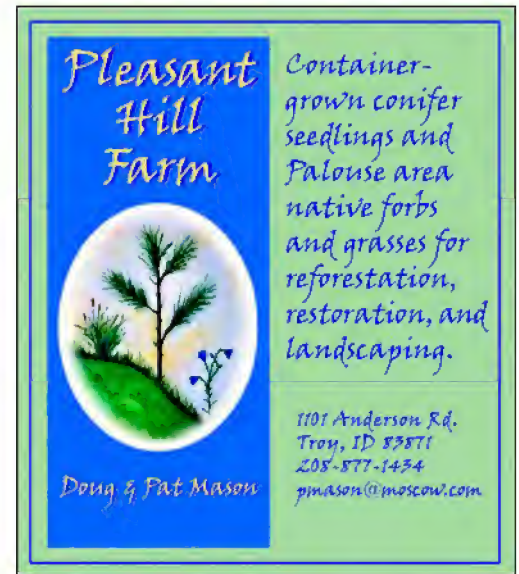
Future

Presently, I am awaiting the results of my first round of lab work to begin analyses, including the specimens

collected in Idaho. These will be initial results, but I will use this information to understand the role and position of the Idaho taxa in the evolution of alpine plants and also to shed light on the Idaho taxa that show the Rocky Mountain–Sierra-Cascades disjunction. This summer I plan to wrap up fieldwork by collecting some of the low-elevation species in the Midwest, the plants of Alaska, and a few endemics in Washington. I feel very fortunate to have support from the Idaho Native Plant Society and I am thrilled to have had the opportunity to botanize in Idaho. Please contact me if you have any questions or comments about my research and if you are interested check out my website documenting my adventures as a botanist at www.RebeccaLStubbs.com. •

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A Field Guide to Grasses and Grass-like Plants of Idaho

By Justin J. Trujillo and Dr. Eva K. Strand, University of Idaho

Imagine walking through an open meadow or driving along a road and discovering a grass or grass-like plant that looked unfamiliar to you. Now, imagine reaching into your backpack and pulling out a field guide or your smartphone to identify the plant and learning more about it. By the end of December 2017, this will become a reality as these resources will be available for educators and students, ranchers, land owners, recreationists, and nature enthusiasts in Idaho and beyond.



Figure 1. Example illustration of the Idaho Grasses and Grass-like Plants mobile app.

The idea to develop a field guide for the grasses and grass-like plants of Idaho began in fall 2014, as part of a directed study project through the Rangeland Center at the University of Idaho. As the project began to take shape, the idea grew to include a companion mobile app, a website, and a youth education component. Over time, the “good idea” evolved into a graduate project that is going from concept to action.

The project titled *A Field Guide to Grasses and Grass-like Plants of Idaho* will produce a user-friendly field guide, with accompanying K-12 lesson plans, for identifying Idaho grasses and grass-like plants. The information will be available 3 ways: 1) a printed field guide, 2) a mobile app for iPhones and Androids (Fig. 1), and 3) an easy-to-use website. The guide will include colorful images (Fig. 2), which will provide a unique visual experience, showing detailed characteristics and vegetative features of each grass, an easy-to-use dichotomous key, and information on each plant's history, forage value, fire resistance, and other important details. The app will be available offline so you can access information regardless of wireless connectivity status.



Figure 2. Close-up of bluebunch wheatgrass (*Pseudoroegneria spicata*). Photo by Justin J. Trujillo.

The field guide will feature approximately 70 grasses and 20 grass-like plants. Each grass and grass-like plant will be collected, pressed, and photographed with both a 35mm Digital Single-Lens Reflex (DSLR) and microscope cameras. The microscope camera images (Fig. 3) will

provide close-up imagery of the plant anatomy, which is very helpful for field identification. Close-ups of grasses will include the glumes, lemmas, paleae, awns, ligules, sheaths, and blades. Close-ups of grass-like plants will include the pistillate scales, perigynia, capsules, and perianth scales.

The project is being led by University of Idaho graduate student Justin Trujillo (Fig. 4), under supervision of Dr. Eva Strand, assistant professor of rangeland ecology. Funding sources include the MILES Undergraduate Research and Internship Program and the American Society for Plant Biologists. Effort is underway to secure additional funds to support the project.



Figure 3. Close-up of jointed goatgrass (*Aegilops cylindrica*) spikelets taken with a microscope camera. Photo by Justin J. Trujillo.

Already available is a temporary website (<http://idahograssbook.wix.com/close-up>) with high-quality pictures of 46 grasses and grass-like plants that were photographed during the summer of 2015. The website contains close-up images of unique features for each plant with captions and illustrations.

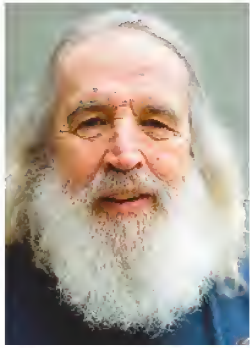
Follow the development of this project on the Facebook Page titled “A Field Guide to Grasses and Grass-like Plants of Idaho.” The field guide and lesson plans, and information about obtaining copies, will be available from the University of Idaho Rangeland Center (www.uidaho.edu/range). •



Figure 4. Image of Justin Trujillo taking pictures of a grass with a blueboard background. Photo by Christopher Schachtschneider.

Memorium

Dave Skinner 1948-2016



Dave Skinner, long-time supporter of White Pine-INPS and a founding member of Palouse Prairie Foundation, passed away January 28, 2016. Many of us have been privileged to enjoy Dave's knowledge and good humor over the years—some of it exercised through the Natural Resource Conservation Service's Plant Materials Center in

Pullman, and on native plant trips. He was a strong presence at White Pine's Native Plant Sales—in plant donations, help in setting up and closing, and in his warm responses to customers' questions. Dave's knowledge of seed care, the worldwide germplasm bank of seeds, and our regional grassland issues made him an invaluable asset. But he was equally known for his quiet friendliness, and his help to those of us "bringing up the rear" on native plant walks.

Dave's wife Jo Bohna says that a memorial service is planned for this spring, perhaps in April. Online condolences can be sent via: <http://www.kimballfh.com>.

A memorial appeared in the Spokesman-Review: <http://www.legacy.com/obituaries/spokesman/obituary.aspx?n=david-michael-skinner-dave&pid=177619127&fhid=23444>.

— Sonja Lewis, White Pine Chapter

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Idaho Mystery Plant

This photo was taken by Rebecca Stubbs (University of Florida) on Borah Peak in Idaho's Lost River Range. What is your guess for this low-growing mountain plant? The answer will be revealed in the next edition of *Sage Notes*.

The Idaho Mystery Plant in the December 2015 issue was mountain dryad (*Dryas octopetala*) in the rose family. It is found on exposed ridges, fellfields, and mountain meadows, often above timberline. In the Rocky Mountains it extends from Alaska southward to Colorado.

Have an Idaho Mystery Plant to share? Send it in to the editor: [sage-editor \[at\] idahonativeplants.org](mailto:sage-editor[at]idahonativeplants.org).

— Michael Mancuso



INPS Chapter News

CALYPSO CHAPTER

When: Meetings are held the first Wednesdays of March, April, May and October at 7:00 p.m. Field trips take place during the spring, summer, and early fall months.

Where: Meetings are held in the conference room of Idaho Department of Fish and Game, 2885 W. Kathleen Ave., Coeur d'Alene.

Contact: Derek Antonelli, [antonelli8 \[at\] frontier.com](mailto:antonelli8@frontier.com)

Upcoming events:

March 2: This meeting will include a presentation on the rare plant conservation ranking process in Idaho with a photo gallery of North Idaho rare plants by Derek Antonelli, Calypso Chapter president.

April 6: Chapter meeting, with presentation topic to be determined. Field trip activities for the year will be planned.

April 30: Arbor Day Celebration at McEuen Park in Coeur d'Alene. Activities will include hikes around Tubbs Hill to look at native plants and planting tree seedlings on Tubbs Hill. Hikes will start at 10:00 a.m. and 12:30 p.m. A free lunch will be held at 11:30 a.m. Meet at the pavilion at McEuen Park near the 3rd Street entrance.

May 4: Chapter meeting, presentation topic will be determined.

Other: The North Idaho Rare Plant Working Group plans to meet on April 5 at the BLM office in Coeur d'Alene. Everyone is invited to attend. If interested, please contact Derek Antonelli for details.

LOASA CHAPTER

All members and the public are welcome to attend chapter events.

When: Meetings are held the third Thursday of each month.

Where: Taylor Building, Room 258, College of Southern Idaho, Twin Falls.

Contact: Bill Bridges

PAHOVE CHAPTER

When: Meetings are held on the second Tuesday of each month from September–April at 7:00 p.m. Dates and times are occasionally subject to change. Upcoming meeting information is sent to members via postcard and/or email. Events are also posted on the Pahove Chapter page of the INPS website:

<http://idahonativeplants.org/pahove/>

Where: MK Nature Center, 600 S. Walnut Street, Boise.

Contact: For more information about Pahove Chapter activities please visit the INPS website or contact our chapter president, Karie Pappani at [pahove.chapter.president \[at\] gmail.com](mailto:pahove.chapter.president@gmail.com)

Previous events:

Big thanks to Pahove Chapter volunteers whose efforts helped make the 27th Idaho Rare Plant Conference on February 10 - 11, 2016 a big success.

Upcoming events:

Dates and topics are tentative. Updated information will be sent to members via postcard and email. Events are also posted under the Pahove Chapter page of the Idaho Native Plant Society website.

March 8: Barbara Ertter will present "Treasures of the Boise Front." Going beyond plants of the Boise Foothills that we are all familiar with, Barbara will discuss rare and unusual plants and where to find them. She will also highlight unique habitats that deserve more attention.

March 18-20: Pahove Chapter will have materials, a slideshow, and plant sale information at the "Go Organic" booth at the Boise Flower and Garden Show in downtown Boise.

April (date TBD): Tour of Lucky Peak Nursery's Trail with Howard Little.

April 22-23: "Go Native!" Annual Plant Sale This event celebrates Earth Day, is a fundraiser for our chapter, and helps promote the use of Idaho's native plant species in our landscaping endeavors. This year we will be emphasizing all things are connected and that native plants are a foundation for supporting a diversity of wildlife. The format will be the same as the past few years with a Members Only sale in the evening on Friday the 22nd (5:00 p.m. to 7:00 p.m.) and an "Open to the Public" sale on Saturday the 23rd (10:00 a.m. to 1:00 p.m.).

SAWABI CHAPTER

The public is always invited to Sawabi events.

Contact: Ardys/Karl Holte at [ardysholte \[at\] cableone.net](mailto:ardysholte@comcast.net) (208) 232-6563, or Grant Thomas at [thomasgm60 \[at\] outlook.com](mailto:thomasgm60@outlook.com), (208) 237-5317

UPPER SNAKE CHAPTER

The Upper Snake Chapter is currently inactive.

Contact: Rose Lehman, [jojorose \[at\] cableone.net](mailto:jojorose@comcast.net)

If anyone is interested in reviving the chapter, they are welcome to contact Rose.

WHITE PINE CHAPTER

When: Meetings are held once a month at 7:00 p.m. except during the summer. Field trips occur most any month. Please check the chapter website at

www.whitepineinps.org for events which may be scheduled or finalized after *Sage Notes* is printed; or email the chapter officers at [whitepine.chapter \[at\] gmail.com](mailto:whitepine.chapter@gmail.com)

Where: Great Room of the 1912 Building, 412 East Third St., Moscow (between Adams and Van Buren).

Contact: INPS, White Pine Chapter, PO Box 8481, Moscow, ID 83843 or [whitepine.chapter \[at\] gmail.com](mailto:whitepine.chapter@gmail.com)

Previous events:

January's presentation by Dennis Ferguson, retired U.S. Forest Service Researcher, showed us the many facets of bracken fern (*Pteridium aquilinum*). Historically, this worldwide species has been valued in making bread (dried and pounded rhizomes), livestock bedding and packing material. The fiddleheads are eaten in some cultures - in Japan after a long soak in ashy water, rinsing, and briefly cooking. But bracken fern correlates with stomach cancer, even after this treatment. The main toxin, ptaquiloside, is destroyed with thorough cooking, but is highly toxic and disabling or fatal if eaten in quantity by livestock. Ptaquiloside is a problem in cow's milk in Costa Rica. In our region's forests, bracken fern's allelopathy makes it a nearly climax species under certain conditions, preventing germination of conifers.

February's presentation by Pam Brunsfeld, retired Univ. of Idaho Systematic Botany instructor, gave us a lively mini-lesson on the fruits of the Rose family. She passed out delicious samples of pomes (apples), aggregates (raspberry, blackberry, and rose hips), aggregate-accessory fruit (strawberry), and drupe (cherry). It was surprising to see reproductive structures still present on some fruits; for example, the green calyx cap of a strawberry hid a ring of stamens, and tiny styles remained on the small (exterior) seeds. She discussed how a variety of conjoined floral structures become our favorite fruits. The pome of serviceberry (*Amelanchier* sp.) was a staple food for many American Indian nations. We also viewed the plumed achene fruits of the beautiful prairie smoke (*Geum triflorum*).

Upcoming events:

March 22: Kristen Pekas, botanist with the Idaho Natural Heritage Program will present "A Day in the Life of a Field Botanist." The presentation will cover the process of planning and implementing botanical research and give an

overview of rare plant surveys and monitoring projects conducted in northern Idaho.

April 14: Rob Taylor will present a program on the beautiful Zumwalt Prairie Preserve. Rob is an ecologist for The Nature Conservancy, where he oversees inventory, monitoring and research at priority conservation sites in northeastern Oregon. Current foci include effects of fire and grazing, monitoring for both rare and noxious plants, and restoration of native plant communities. The program will include information and results from ongoing research projects.

March 19: Field Trip to Steptoe Canyon. Meet at Dissmore's IGA (1205 North Grand Ave.) in Pullman, WA at 9:00 a.m. Terry Gray will lead this field trip to look for spring bloomers and assess riparian habitats along Steptoe Canyon. The trip may include short hikes (one mile) along other small drainages that flow into the Snake River, if time permits. We are likely to see some interesting birds as well, so bring your binoculars! Also bring lunch, water, and sunscreen, and wear suitable footwear for hiking.

WOOD RIVER CHAPTER

When: Meetings are held various weekday evenings beginning at 7:00 p.m.

Where: Meetings are held at the Sawtooth Botanical Garden, located three miles south of Ketchum, on Highway 75 and Gimlet Road.

Contact: Cynthia Langlois at [cplangloisACRP \[at\] msn.com](mailto:cplangloisACRP@msn.com) for information about field trips and presentations. Also, check the Sawtooth Botanical Garden website: sbgarden.org for updates on presentations.

Upcoming events:

February 29: Robert Garcia, Sawtooth National Forest Service Range Manager will give a presentation titled "Rangeland Ecology and Management: What Why Who Where How and When."

March 10: Wallace Keck will give a presentation titled "City of Rocks."



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- ☐ Upper Snake (Idaho Falls)
- ☐ White Pine (Moscow)
- ☐ Wood River (Ketchum/Sun Valley)
- ☐ No Chapter

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Memberships run calendar year. New memberships enrolled after June 1 include the following year. **Renew or join online:** <https://idahonativeplants.org/membership/>

Sage Notes is published quarterly by the Idaho Native Plant Society. Past issues can be viewed online at:

idahonativeplants.org/sage-notes/

Submissions: Members and non-members may submit material for publication. Relevant articles, essays, poetry, news, announcements, photographs and artwork are welcome. Authors, artists and photographers retain copyright to their work and are credited in *Sage Notes*. Send all submissions electronically to the editor at the link below. Please provide a phone number and/or email address with your submission. Submission deadlines are January 8, April 1, August 1 and November 1.

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Editor: Michael Mancuso,
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From Refugia to Ridgetops — June 10-13, 2016

Annual Meeting of the Idaho Native Plant Society

Registration Form (due no later than May 15)

Whitepine.chapter@gmail.com

Please print information to ensure your registration is processed correctly.

Name (1): _____

Name (2): _____

Address: _____

Phone: Cell: _____ Home: _____

Email(s): _____

Registration and Fees: The registration fee is \$10 per person and includes participation in any/all parts of the agenda including the Friday potluck, the three days of field trips and the Saturday evening program. The Saturday evening buffet dinner is a separate cost of \$18 per person. If you wish to take advantage of the Fish Creek Group Use Site (001), (tent or RV, no hookups) the fee is \$10 per vehicle whether for one day or for all days (Thursday through Monday nights, vehicle rate includes auto/trailer combinations).

Registration Fee:	\$10.00 x _____ = _____	
Saturday Catered Dinner:	\$18.00 x _____ = _____	Vegetarian ____ Meat ____
Camping Fee (if using Group Camp):	\$10.00 _____	
Total Fees:	_____	

Please list any dietary restrictions/preferences _____

*If you have a pickup camper or camping trailer please specify **camper** ____ **trailer** ____ **length** ____.*

Those who stay in a space in the nearby developed Fish Creek Campground would pay \$12 per night assessed at time of arrival and would not pay the Group Camp fee. This site is first-come, first-served.

You may register online at <http://idahonativeplants.org/statewide-annual-meeting/> or by using this form. If you use this form, please make check payable to "INPS White Pine Chapter." Mail payment and completed form to:

INPS White Pine Chapter, P.O. Box 8481, Moscow, ID 83843.

Register for your field trip choices now (below). Some group sizes may be limited and we may not be able to accommodate everyone on their first choice. Gathering times and places for field trips and dinner tickets will be in the registration packets, available Friday afternoon and Saturday morning. If numbers warrant, additional field trip options will be available at time of the meeting.

Saturday Field Trips:

_____ #1 Canyon Creek/Dasynotus site (all day, driving/hiking tour)

_____ #2 Mud Springs Ridge and Lucile Caves RNA (all day, driving/hiking tour)

_____ #3 Coolwater Ridge Lookout hike (all day - drive and hike to lookout)

Sunday Field Trips:

_____ #1 Canyon Creek/Dasynotus site (all day, driving/hiking tour)

_____ #2 Mud Springs Ridge and Canyon Overview (all day driving/hiking tour)

_____ #4 Grand Fir Mosaic tour (all day, driving/hiking tour)

Monday Optional Field Trip:

_____ #5 TBD (morning and early afternoon)